

L 60891-65 EWT(m)/EWP(f)/EWP(b) IJP(c) JD

ACCESSION NR: AP5018920

UR/0363/65/001/006/0877/0879
546.282-31;539.26

16
13
B

AUTHOR: Gusatinskiy, A. N.; Kolobova, K. M.; Mikhaylov, N. S.; Nemnonov, S. A.

TITLE: Use of x-ray spectra in the detection of silicon monoxide

SOURCE: AN SSSR. Izvestiya. Neorganicheskiye materialy, v. 1, no. 6, 1965, 877-879

TOPIC TAGS: silicon oxide, x-ray fluorescence

ABSTRACT: SiO was obtained from a compacted equimolar mixture of powdered Si and SiO₂ by sublimation in a vacuum. The temperature in the reaction zone was 1375C, and in the condensation zone, 860C. Comparison of the chemical and x-ray data showed that the product consisted of a heterogeneous system made up of fine Si and SiO₂ particles. In order to obtain additional proof of this fact, K_{α1,2} x-ray fluorescence spectra of silicon were taken in the product and also in pure silicon and SiO₂ (quartz). The results confirmed the earlier findings: SiO is actually a mixture of Si and SiO₂, the latter being apparently in an amorphous phase. This does not mean, however, that SiO cannot exist in the solid state. As indicated by the free energy change for the decomposition of SiO, the existence of this oxide and the existence of the mixture Si + SiO₂ are

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equiprobable. The study shows the usefulness of the x-ray spectral method in the identification of the compound SiO and approximate determination of the degree of its decomposition. In the case under consideration, this method was more sensitive than the x-ray structural method. "The authors are grateful to Prof. S. A. Semenov, who determined the free energy change of the reaction $2\text{SiO}(s) \rightleftharpoons \text{SiO}_2(s) + \text{Si}(s)$ as a function of temperature at their request." Orig. art. has: 1 figure and 1 formula.

ASSOCIATION: Institut fiziki metallov AN SSSR (Institute of Metal Physics, AN SSSR); Vsesoyuznyy nauchno-issledovatel'skiy i proyektnyy alyuminiyevomagniyevyy institut (All-Union Scientific Research and Planning Institute of Aluminum and Magnesium)

SUBMITTED: 17Dec64

ENCL: 00

SUB CODE: IC, OP

NO REF SOV: 005

OTHER: 001

ilk
2/2

YABKO, B.M., inzh.; MIKHAYLOV, N.V., doktor tekhn.nauk; KARASEV, K.I.,
kand.khim.nauk

Study of the structural and mechanical properties of water-based
paints and aspects of applying them. Sbor. trud. VNIINSM no.2:
191-204 '60. (MIRA 15:1)

(Paint)

YABKO, B.M.; MIKHAYLOV, N.V.; PETROVA, A.V.; MATSKEVICH, Ye.B.

Dispersion of natural pigments in cavitation and vibration
mills. Sbor. trud. VNIINSM no.4:121-133 '61. (MIRA 15:2)
(Pigments---Testing)

REBINDER, P.A., akademik; MIKHAYLOV, N.V., doktor tekhn.nauk

Scientific bases of the production technology of new materials.

Vest. AN SSSR 31 no.10:70-77 0 '61.

(MIRA 14:9)

(Technological innovations)

(Materials)

REBINDER, P.A., Akademikus (Szovjetunio); MIHAJLOV, N.V. [Mikbaylov, N.V.]
(Szovjetunio)

Physicochemical mechanics. Technika 6 no.10, 2 0 '62.

SUPPE, G.A., inzhener; MIKHAYLOV, N.V., inzhener; VINOGRADOV, G.S., inzh.,
red.; GVIRTIS, V.L., tekhn.red.

[Continuous conveyer method of assembling appliances] Potochno-
konveiernaya sborka priborov. Leningrad, 1955. 19 p. (Leningradskii
dom nauchno-tekhnicheskoi propagandy. Informatsionno-tekhnicheskii
listok, no.74(762)) (MIRA 10:12)

(Assembly-line methods)

USSR/Farm Animals. Horses

Q-2

Abstr Jour : Ref Zhur - Biol., No 11, 1958, No 42961

Author : ~~Mikh. Vlov N.V.~~
Inst : Kemerovo State Institute of Veterinary Science.
Title : Brachial and Thoracic Wall Nerve in Horses.

Orig Pub : Uch. zap. Kemerovsk. gos. vet. in-ta, 1958, 64, No 1, 83-94

Abstract : On 37 specimens which were prepared from the anterior extremities and thoracic walls of the cadavers of horses (24) and of other animals, the following nerve and their functions were investigated according to the method of Verot's: topography, relationship to each other, branching of cranial and caudal thoracic nerves, as well as of preaxillary, subaxillary, subscapular, axillary-cutaneous, median, ulnar, and radial nerves, of nervi intercostales, and of nerves serving the bones, joint capsules, ligaments, skin, and muscles.
I.I. Berezhnev.

Card : 1/1

MIKHAYLOV, N.V.

We clear the ice from contact networks in good time. Elek. i tenl.
tingn 2 no.2:32 F '58. (MIRA 11:4)

1. Nachal'nik distantzii kontaktnoy seti 1-go uchastka energosna-
bheniya Moskovsko-Kursko-Donbasskoy dorogi.

(Electric railroads--Wires and wiring--Cold weather)
(Conditions)

MIKHAYLOV, N. V.

USSR (600)

Furniture Industry

Problems of standardization in furniture production. Der. i lesokhi". prom
1 no. 3 - 1952

Monthly Lists of Russian Accessions, Library of Congress, March, 1953, Unclassified.

39643

S/137/62/000/007/021/072

A052/A101

11690

AUTHORS: Gorbunov, N. S., Shatalova, I. G., Likhtman, V. I., Mikhaylov, N. V.,
Rebinder, P. A.

TITLE: On the vibration method of compression in powder metallurgy

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 7, 1962, 47, abstract 7G325
("Poroshk. metallurgiya", no. 6, 1961, 10 - 16; English summary)

TEXT: The effect of working pressure on the change of density at a static
and vibration (vibrator with a vibration frequency of 14,000 per minute) pressing
of powders of Ti, Mo, SiC, B₄C, TiC and WC hard-alloy mixtures was studied. Vibra-
tion pressing is especially advantageous for unmoldable powders of refractory
compounds. When a vibrator is used the working pressure reduces approximately by
two orders of magnitude, which is connected with a better packing of powders. The
effect of the time factor and of the height of briquets on the change of density
was also studied.

R. Andriyevskiy

[Abstracter's note: Complete translation]

Card 1/1

GUDKOVA, T.I.; KOZAROVITSKIY, L.A.; MIKHAYLOV, N.V.

Effect of the structural and mechanical properties of printing
inks on their behavior in the printing process. Koll. zhur. 22
no. 6:649-657 N-D '60. (MIRA 13:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut poligraficheskoy
promyshlennosti, Moskva.

(Printing ink)

MIKHAYLOV, N.V., dotsent

Macroscopic and microscopic morphology of thoracic spinal nerves
in birds as related to the biomechanics of the thorax. Uch.zap.
KVI 85: 1-73'62. (MIRA 16:7)

1. Iz kafedry anatomii zhivotnykh Kazanskogo veterinarnogo in-
stituta (zav.-prof. I.A. Vashnetsov [deceased]).
(BIRDS--ANATOMY) (NERVES, SPINAL) (FLIGHT)

1ST AND 2ND DEGREE										3RD AND 4TH DEGREE									
MATERIALS										PROCESSES AND PROPERTIES									
CA Hydrophobic building material. N. V. Mikhailov U.S.S.R. 66,669, July 31, 1946. This compn., suitable for building or road construction, is a mixt. of a mineral gran- ular filler and bitumen dissolved in green oil. The filler is preheated to 150-80°, combined with a cold soln. of the bitumen, and the two are heated with const. agitation for 10-30 min. M. Hoseh										20									
ASB-5LA METALLURGICAL LITERATURE CLASSIFICATION										6-27-72-1282									
FROM SYNOBISH										FROM SYNOBISH									
100000 HEP GRY 001										001001 GRY GRY 101									
100000 HEP GRY 001										001001 GRY GRY 101									

YANICH, M. V., Eng. Cand. Tech. Sci.

ertation: "Roof and Antenna Structures with a Monopole and a Dipole."
tral Sci Res Inst of Industrial Structures (TsNII), 6 Feb 76.

Yekaterinaya Moskva, Feb, 1976. 100 p. 41 figs.

Microfilm frame containing a document page. The document is titled "Determination of the fluidity of cementing materials and other bitumens. N. V. Mikhailov. U.S.S.R. 07,807, Feb. 28, 1947." The text describes a method for determining the fluidity of cementing materials and other bitumens. The document is handwritten with "CA" in the top left and "20" in the top right. The document is also marked with "ASTM 5.1.4 METALLURGICAL LITERATURE CLASSIFICATION" and "ASTM 5.1.4 METALLURGICAL LITERATURE CLASSIFICATION".

Microfilm frame containing a document page. The document is titled "Determination of the fluidity of cementing materials and other bitumens. N. V. Mikhailov. U.S.S.R. 07,807, Feb. 28, 1947." The text describes a method for determining the fluidity of cementing materials and other bitumens. The document is handwritten with "CA" in the top left and "20" in the top right. The document is also marked with "ASTM 5.1.4 METALLURGICAL LITERATURE CLASSIFICATION" and "ASTM 5.1.4 METALLURGICAL LITERATURE CLASSIFICATION".

KHAYLOV, NIKOLAY YASIL'YEVICH

Krovel'nyye i gidroizolyats; Ormyye perittita i primerem lyen Zelenog
Masla (Roofing and Waterproof Covers with the Use of Green Oil) Moskva.
Mashstroyizdat, 1950

182 p. Illus. Tables, Diags.
"Ferechen" Aspal'tovankoy literaturey!
182 - (183)

MIKHAYLOV, IV V

USSR

Harry A. Goldstein
Study of the structure-mechanical properties of concentrated aqueous cement suspensions during the setting process. R. H. Kalmykova and N. V. Mikhailov. *Colloid J. (U.S.S.R.)* 16, 341-6 (1954) (Engl. translation). See *C.A.B.* 29604.
H. L. H.

MIKHAYLOV, N. V.

Study of the structure-mechanical properties of concentrated aqueous cement suspensions during the setting process. R. R. Kamykova and N. V. Mikhaylov. *Kolloid. Zhur.* 16, 260-7 (1954).—Cement slurries were sheared between 2 coaxial cylinders for 1-3 sec. at different times t after mixing. The yield stress P_0 (kilodynes/sq. cm.) increased with t slowly until a P_0 value was reached which was independent of the ratio (r) solid: water, but was greater (70) for a cement contg. 8% tricalcium alumina: (I) than (40) for one contg. 18% I. This was the stage of structure formation. At greater P_0 , it increased with t more rapidly; on this stage the structure was stabilized. The plastic viscosity $\eta = (P - P_0)/(d\epsilon/dt)$ also increased with t first slowly and then rapidly, and the change of rate occurred at the same time as the change of dP_0/dt ; P = applied stress, ϵ = deformation. The ratio P_0/η is a measure of plasticity of cement slurry. This ratio rapidly decreased in time for the cement rich in I but was almost independent of time (up to 18 hrs.) and of r for the cement contg. less I; thus, the latter cement longer preserved its formability.

J. J. Bikerman

MAYLOV, N. V.

/Chemistry - Physical chemistry

1/1 Pub. 22 - 23/45

ors : Mikhaylov, N. V., and Kalmykova, E. E.

e : Investigation of structural-mechanical properties of cement pastes by means of an elastoviscosimeter

odical : Dok. AN SSSR 99/4, 573-576, Dec 1, 1954

ract : The structural-mechanical properties of various cement pastes during the process of hardening were investigated by means of an electron-selsyn elastoviscosimeter a detailed description of which is presented. Five USSR references (1930-1954). Table; graphs.

itution : ...

ented by: Academician P. A. Rebinder, September 13, 1954

KHAYLOV, N.V.

USSR.

4789* Elastic Weakening of a System During the Application of Dynamic Stresses. Uprugoe rasslableniye sistemy pri nasto-
zhenii pul'siruiushchikh napriazhenii. (Russian.) N. V. Mikhaylov. Doklady Akademii Nauk SSSR, v. 90, no. 5, Dec. 11, 1954, p. 740-741.

Experimental data on applications of loads of 51×10^4 dynes per cm² to 1-sec. cycles to a solidified, high-aluminate cement. Graph. 8 ref.

Name: MIKHAYLOV, Nikolay Vasil'yevich

Dissertation: New construction characteristics of
bitumens and cements according to
their structural and mechanical prop-
erties

Degree: Doc Tech Sci

Affiliation: [not indicated]

Defense Date, Place: 25 Oct 55, Council of Moscow Order of
Labor Red Banner Engineering Con-
struction Inst imeni Kuybyshev

Certification Date: 7 Jul 56

Source: BMVC 5/57

HAYLOV, N.V.

USSR

Fluidity and strength of structured liquids. N. V. Michailov (All-Union Sci. Research Building Inst., Moscow). *Kolloid. Zhur.* 17, 68-74 (1955); cf. C.A. 49, 2099h. Trapeznikov and Fedotova (C.A. 40, 8472c) believe the max. appearing on $P-\epsilon$ curves (P stress, ϵ deformation, e.g., in a coaxial cylinder plastometer) have fundamental importance; in reality their magnitude depends on the rigidity of the dynamometer used. Expts. on deformation of bitumen at 65° and shearing rates varying in the ratio 1:1000 show that each gradient of shear causes a definite breakdown of the structure; the degree of breakdown increases with this gradient to a limit at which P becomes const. Also in *Colloid J.* (U.S.S.R.) 17, 61-7 (1955) (Engl. translation). J. J. Bikerman

MIKHAYLOV, N.V.

Elastoplastic properties of petroleum bitumens. Koll.shur.
17 no.3:242-246 My-Je '55. (MIRA 8:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po stroitel'-
stvu, Moskva.

(Bitumen)

MIKHAYLOV, N.V.; LIKHTSEYN, A.M.

Investigation of the complete rheological curves and a formula for the calculation of the effective viscosity of structurized liquids with a molecular-kinetic interpretation of the component terms.
Koll.zhur.17 no.5:364-378 S-O '55. (MLRA 9:1)

1.Vsesoyuznyy nauchno-issledovatel'skiy institut po streitel'stvu,
Moskva. (Rheology)

MIKHAYLOV, N. V.

Category: USSR / Physical Chemistry - Colloid chemistry. Disperse systems.

P-1-

Source: Referat Zhur-Khimiya, No 9, 1957, 30231

Author: Shalyt E. Ya., Mikhaylov N. V.
not given

Subject: Temperature Dependence of the Curves of Flow and Viscosity Characteristics of Bitumens

Pub: Kolloid. zh., 1956, 18, No 5, 609-614

Abstract: Structural and mechanical properties of oxidized bitumens, prepared from asphalts of Arterenskaya petroleum and differing in duration of the oxidation, were studied by means of the electronic selsyn elastoviscosimeter (RZhKhim, 1955, 55805) by observing development of shear stress (τ) until it reaches the equilibrium value, at constant rate of deformation $\dot{\epsilon}$. Complete rheological τ - $\dot{\epsilon}$ curves, for 65-95°C, are of S-like nature, being located within the angle formed by two straight lines extending through the origin of coordinates: the initial

Page: 1/3

-5-

Library: USSR / Physical Chemistry - Colloid Chemistry. Disperse systems.

Source: Referat Zhur-Khimiya, No. 9, 1957, 30231

7-14

tangent at point $F = 0$, $\epsilon = 1/\eta_{\infty}$, wherein η_{∞} is maximum viscosity of integral structure, and the terminal tangent ($\eta_{\infty} = P/\eta_{\infty}$), corresponding to minimum viscosity η_{∞} of farthest broken-down structure. In addition η_{∞} and η_{∞} are characterized by limiting stresses: P'_{∞} , above which η_{∞} ceases to be constant and P'_{∞} , corresponding to transition into the region of η_{∞} . The corresponding limiting η_{∞} and η_{∞} increase on rise of temperature, from 40 to 95°, by more than 1000 times. With rise in temperature η_{∞} decrease much more sharply than in the case of true liquids of the same viscosity, which is associated with the additional effect that arises as a result of structure breakdown on rise of temperature. Dependence on temperature is well expressed by the coefficient of thermal sensitivity $K = d \ln \eta_{\infty} / dT$, which retains a constant value over wide temperature ranges, corresponding to three distinct states of the bitumens. A -- solid-like, due to additional structure-formation based on crystallization of

-6-

Card : 2/5

gory: USSR / Physical Chemistry - Colloid chemistry. Disperse
systems.

P-14

Our: Referat Zhur-Khimiya, No 9, 1957, 30231

paraffins (below 40°); B -- state of structured liquid ($40 - 140^{\circ}$),
and C -- true liquid state, which sets in at a temperature above 100° .
On transition to bitumens of higher grades, K and especially ν_1 in-
crease, thus characterizing the change in their utilization proper-
ties. At a given temperature ν_1 characterizes a technological
property of bitumen, namely, its ready application by spreading.

: 3/3

-7-

MIKHAYLOV, N.V., doktor tekhnicheskikh nauk; GAL'PERIN, M.P., kandidat tekhnicheskikh nauk.

Useful book ("Using reinforced concrete sections in people's democracies" by N.M.Kurek and M.V. Ostrovskii. Reviewed by N.V. Mikhailov, M.P. Gal'perin). Stroi.pred.neft.prom. 1 no.8: 31 0 '56. (MLRA 9:12)

(Europe, Eastern--Reinforced concrete construction)
(Kurek, N.M.) (Ostrovskii, M.V.)

IKHAYLOV, N. V.

Effect of vibration on the structure-mechanical properties of asphalt concrete considered as a thixotropic colloidal system. B. K. Noskov and N. V. Mikhailov (All-Union Sci. Research Building Inst., Moscow). *Kolloid Zhur.* 18, 461-7(1956).—A metal cylinder was pressed into a coaxial tube conig. a mix. of asphalt and crushed limestone or a sand concrete loaded with 3% asphalt. The plastic viscosity η of the concrete was, e.g., 6×10^4 and 2.8×10^4 poises at 60° and 120°, resp. When the system was shaken 2000 times/min., η became 1.8×10^4 and 1.8×10^4 , resp., and at 6800 vibrations/min. η was 8×10^4 and 9×10^4 , resp. At 100°, the lowering of η by vibration was greater than at any other temp. The yield stress was large in stagnant concrete but reduced to nothing by vibration. The η of asphalt limestone was almost independent of the frequency of vibration between 2000 and 6000. $\dagger$

J. J. Bikerman

MIKHAYLOV, N. V.

Full

The effect of temperature on the flow and viscosity of bitumen. S. Ya. Shalyt and N. V. Mikhailov (Sci. Research Construction Inst., Moscow). *Kolloid. Zhur.* 18, 809-14 (1956).—An oxidized petroleum bitumen was a "solid" with a yield stress at 20°; between 40° and 140° its viscosity, η , was independent of shear stress, P , at small P and at large P , and decreased on increasing P at medium P values. η , at small P , was 4000, 1250, and 470 poises at 65, 75, and 85°; the low η found was about $1/5$ of the

highest value for η . Above 140° the bitumen behaved as a Newtonian liquid. Analogous results were obtained on other bitumens.

I. J. Bikerman

IKHAYLOV, N.V.

Effect of vibration on the structure-mechanical properties of asphalt concrete considered as a thixotropic colloidal system. S. K. Noskov and N. V. Mikhailov. *Colloid J. (U.S.S.R.)* 43, 481-6 (1981) (English translation). See C.A.B. 51, 1872g. H.M.R.

KHAYLOV, N. V.

"On the Study of the Physico-Mechanical Properties of those materials Related
to a Number of Equivalent Rocks in the Modeling of Tectonic Phenomena."

paper presented at the First All-Union Conference on Tectonophysics, Moscow
January through 5 February 1957.

Moscow Scientific Research Institute for Construction)

A new instrument constructed by the author was described, an "electronic-seism
elasto-viscosimeter," Several new methods of determining the coefficient of
viscosity of materials were given.

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SHALYT, S.Ya.; MIKHAYLOV, N.V.; REBINDER, P.A.

Effect of an active filler and of a solvent on the structure and
mechanical properties of bitumens. Koll.shur. 19 no.2:244-251
Mr-Apr '57. (MLRA 10:5)

1.Nauchno-issledovatel'skiy institut po stroitel'stvu Ministerstva
stroitel'stva SSSR, Moskva.
(Bitumen)

SOV/97-58-9-7/13
AUTHOR: (Mikhaylov, N.V., Doctor of Technical Sciences
TITLE: Sand Concrete (Peschanyy beton)
PERIODICAL: Beton i Zhelezobeton, 1958, Nr 9, pp 347 - 348 (USSR)
ABSTRACT: Half of the required volume of cement in concrete could be saved if it is substituted by finely-ground sand. To obtain high-quality concrete for pre-stressed reinforced concrete constructions, it is necessary to use hard aggregate such as granite aggregate. Due to the high cost of this aggregate, fine sand is substituted which is more readily available for casting thin pre-stressed concrete constructions. Sand concrete has advantages when small diameter pre-stressed wires are used and obviates the formation of voids between closely spaced wires and finally simplifies casting. Soft sands are not used in concrete mixes as they increase the cement requirement or decrease the strength of the concrete. The theory of the Academician P.A. Rebinder on processes of structure formation during hardening of cement in concrete mix is the basis for physical and chemical theory of concrete. The important point in this theory is the clarification of the process of decrease of viscosity of the concrete mix. The fine grains of the

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Sand Concrete

SOV/97-58-9-7/13

aggregate or cement which do not come into contact with water are glued together by colloidal cement which under static conditions possesses high adhesive properties which makes the concrete less workable. During vibration, the grains of cement and fine aggregate of various weights are forced apart and as a result of the mixing of particles are speeded up. Due to the velocity gradient, the coagulation structure of colloidal cement glue is broken and its adhesion considerably lowered. For lowering the viscosity of concrete mix during mixing as well as during consolidation, it is necessary to lower the viscosity of the cement grout as much as possible and to induce such a speed of mixing of grains of sand and gravel to allow these particles to reach their final position quickly. The above mentioned theory of concrete makes it possible to use the cement in concrete to its fullest effect. The new method of mixing and casting stiff mixes, resulting in hard concrete, is based on intensive and continuous vibration of the mix from the moment of mixing the cement and aggregate with water until completion of consolidation of concrete. For consolidation of sand concrete, the following data for vibration is recommended: a) for high-

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land concrete

SOV/97-58-9-7/13

purity mix 10 000 - 20 000 vibrations/min at an amplitude of 0.2 - 0.3 mm; b) for medium purity of aggregate 3 000 - 6 000 vibrations/min at an amplitude of 0.6 - 1 mm; c) for the consolidation of concrete made from ordinary aggregate 200 - 600 vibrations/min with an amplitude of 5 - 10 mm. The introduction into cement of a plasticiser and substances for acceleration of hardening increases the quality of the concrete mixes. This new type of concrete has superior qualities: homogeneity, strength, water non-permeability and durability, the latter being of high value in the case of thin panels.

Card 3/3

my hand: 2 NY

07-20-50-0-6722

AUTHORS: Kalmykova, Ye.Ye., Candidate of Technical Sciences and
Mikhaylov, N.V., Doctor of Technical Sciences

TITLE: Vibro-Activation of Cement Mixtures (Vibroaktivirovaniye tsementnogo testa)

PERIODICAL: *Gidrotekhnicheskoye stroitel'stvo*, 1958, ¹№ 6, pp 18-24

ABSTRACT: Professor Yu.Ya. Shtayerman of the TNISGEI conducted research on the increase of cement activity by vibrating it at a lower water-cement ratio in the first stage of treatment, during which the vibration is conducted with higher frequency. Vibro-activation of the cement mixture is carried out as follows: The cement is mixed with 90-95 % of the water normally used to obtain a mixture of normal density. It is then vibrated and mixed 10-20 min. Water is then added to obtain a prescribed water/cement ratio, and the filler is added. The mixture was subjected to vibro-activation for different lengths of time and it was found that the best effect of plastification was after 10 min and with a water/cement ratio of 0.2 (Table 1).

Card 1'2

Vibro-Activation of Cement Mixtures

NOV-08-58-8-6/22

There are 3 graphs and 7 tables, and 3 Soviet references.

1. Concrete--Preparation 2. Vibrators--Applications

Card 2/2

IVANOV, A.I., inzh.; MIKHAYLOV, N.Y., doktor tekhn.nauk

Structural and mechanical properties of bitumens obtained
in various sousing kilns. Stroi.mat. 5 1959.11:34-38
(MIRA 13:3)

(Bitumen)

LIVSHITS, L.S., inzh.; MIKHAYLOV, N.V., kand. tekhn. nauk

Prefabricated roof elements of industrial buildings. Nov. tekhn. mont. i spets. rab. v stroi. 21 no. 4:16-19 Ap '59.

(MIRA 12:5)

1. Nauchno-issledovatel'skiy institut stroitel'noy promyshlennosti Ministroya RSFSR.

(Roofing, Concrete)

5(4)

SRV/69-1-4-5/22

AUTH R: Vedeneyev, B.V. and Michaylov, A.V.

TITLE: Rheology of Bitumens and Their Flow in Pipes at Elevated Temperatures

PERIODICAL: Kolloidnyi Zhurnal, 1969, Vol. XXI, No. 4, pp. 39-44

ABSTRACT: The authors report on an investigation intended to establish hydraulic relations, and to obtain formulae for the determination of head losses during the flowing of heated bitumen in pipes of a circular cross section. The viscosimetric investigations were carried out at high temperatures. The bitumen used for the experiment was of the type BN-IV of the Gor'kovskiy zavod (Gor'kiy plant). The determination of its rheological characteristics was carried out with the aid of the NII-266 electron balance electroviscometer. For the investigation of the flow of the bitumen in pipes a special installation was built, the scheme of which is illustrated in figure 1 (diagram). The results of the rheological investigations are shown in figure 2 (graphs). At 170 and 180°C and also at

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07/62-21-4-1/22

Rheology of Bitumens and Their Flow in Pipes at Elevated Temperatures

lower temperatures) the dependence of the flow velocity gradient ϵ on stress τ is expressed by an S-shaped curve, on which the value of effective viscosity $\eta = \frac{\tau}{\epsilon}$ is not a constant but decreases in dependence on growing stress. At 180°C and more, the bitumen behaves like a Newton liquid with constant viscosity. Figure 3 (graph) illustrates the diminution of its viscosity (from 1.6 to 0.1 poises) on heating from 100 to 200°C. Its flow in pipes was studied at temperatures from 100 to 200°C with intervals of 10°C. Table 1 gives a characteristic of its structure-mechanical properties. The results obtained with these experiments permitted the establishment of a dependence of head losses on bitumen flow for each measuring pipe (figure 1) at various temperatures. The values for head losses and flow were used for the calculation of the maximum shearing strength of the liquid on the pipe wall and the velocity gradient at parabolic velocity distribution. The mutual functional de-

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SOV/6-1-4-5/77

Rheology of Bitumens and Their Flow in Pipes at Elevated Temperatures

endency of these magnitudes is shown in figure 4 (graph). It is evident that the experiments were carried out under laminar flow conditions. The processing of the experimental results was carried out on the basis of the viscosity value for bitumen with ultimately broken-down structure (Newtonian liquid). The basic magnitude, therefore, which determines the flow character of heated bitumen in pipes, is the usual Reynolds criterion. Formulae $\lambda = 64/\text{Re}$ and $\lambda = 230/\text{Re}$, fully consider the structure-mechanical properties of BN-IV bitumina and are suitable for technical calculations. The experiments confirmed the technical possibility and economical suitability of a vertical or horizontal transporting of heated bitumen with the aid of pumps, and through standard pipes over considerable distances. The head losses in pipes of 50, 40 and 20 mm in diameter at medium industrial rates of flow are inconsiderable. A laminar flow of bitumen is of basic importance, as it excludes hydraulic hammer and

Card 3/5

307/69-21-4-5/22

Rheology of Bitumens and Their Flow in Pipes at Elevated Temperatures

heat losses during pumping and creates better conditions for the issue of the heated liquid from the pipe. The basic criterion for the pumping of bitumen through pipe conduits is the viscosity value for bitumen in the liquid state, the latter being obtained by heating or a corresponding velocity gradient. For bitumen flowing at a constant rate of velocity, the head losses in pipes sharply increase in dependence on a fall of temperature of the bitumen. Technical calculations of bitumen flow in pipes with circular cross section must be carried out according to the Darcy ("Darcy") formula. The coefficient of hydraulic resistance for laminar flow conditions must be determined according to the formulae $\lambda = 64/Re$ (Newton bitumina) and $\lambda = 20/Re$ (structurized bitumina). These formulae hold for any bitumina and also for bituminous mastics. The authors mention the Soviet scientist N.I. Vishchenko in connection with the generalized form of the Reynolds criterion. Mention is also made of M.P. Volarevich in connection with the viscosimetric device he designed.

Card 4/5

SOV/67-21-4-5/22

Rheology of Bitumens and Their Flow in Pipes at Elevated Temperatures

There are 4 graphs, 1 diagram, 1 table and 1 Soviet reference.

ORIGINATOR: Gor'kovskiy inzhenerno-stroitel'nyy in-tit', Nauchno-issledovatel'skiy institut po stroitel'stvu, Moskva
(Gor'kiy Engineering-Construction Institute,
Scientific Research Institute of Construction, Moscow)

SUBMITTED: 3 September, 1969

Card 5/5

Moscow, 27 Jan - 3 P.M. '60.

168. A. D. Lottis (Moscow): On some problems of the theory of the elastostatic field.
169. V. A. Lomov (Moscow): Vibration of a rod at room temperature.
170. V. A. Lomov (Moscow): Plasticity of metals under combined loading.
171. A. I. Lomov (Moscow): Some problems of non-stationary flow of an incompressible viscoelastic (Maxwellian) liquid.
172. A. I. Lomov, N. D. Ruzikov (Moscow): Some problems of quasi-stationary flow of an incompressible viscoelastic (Maxwellian) liquid.
173. A. I. Lomov (Moscow): The generalization of the torsion theory of the elastostatic field.
174. A. I. Lomov, V. V. Ponomarev (Moscow): The development of the elastostatic field.
175. A. I. Lomov (Moscow): Plastic flow of circular plates under combined loading and bending of compression and bending.
176. A. I. Lomov (Moscow): Torsion of an anisotropic body.
177. A. I. Lomov (Moscow): Free vibrations and stability of a rod under combined loading and bending.
178. A. I. Lomov (Moscow): Supplement of results for the torsion of a rod.
179. A. I. Lomov (Moscow): On the application of matrix methods to the problem of the stability of a rod under combined loading and bending.
180. A. I. Lomov (Moscow): The stability of a rod under combined loading and bending.
181. A. I. Lomov (Moscow): Some problems of the elastostatic field.
182. A. I. Lomov (Moscow): Methods for the solution of the problem of the elastostatic field.
183. A. I. Lomov (Moscow): Analysis of an anisotropic body under combined loading and bending.
184. A. I. Lomov (Moscow): On the experimental study of stress in plates and shells.
185. A. I. Lomov (Moscow): On the experimental study of stress in plates and shells.
186. A. I. Lomov (Moscow): On the experimental study of stress in plates and shells.
187. A. I. Lomov (Moscow): On the experimental study of stress in plates and shells.
188. A. I. Lomov (Moscow): On the experimental study of stress in plates and shells.
189. A. I. Lomov (Moscow): On the experimental study of stress in plates and shells.
190. A. I. Lomov (Moscow): On the experimental study of stress in plates and shells.
191. A. I. Lomov (Moscow): On the experimental study of stress in plates and shells.
192. A. I. Lomov (Moscow): On the experimental study of stress in plates and shells.
193. A. I. Lomov (Moscow): On the experimental study of stress in plates and shells.
194. A. I. Lomov (Moscow): On the experimental study of stress in plates and shells.
195. A. I. Lomov (Moscow): On the experimental study of stress in plates and shells.
196. A. I. Lomov (Moscow): On the experimental study of stress in plates and shells.
197. A. I. Lomov (Moscow): On the experimental study of stress in plates and shells.
198. A. I. Lomov (Moscow): On the experimental study of stress in plates and shells.
199. A. I. Lomov (Moscow): On the experimental study of stress in plates and shells.
200. A. I. Lomov (Moscow): On the experimental study of stress in plates and shells.

VEDENEYEV, B.V., dots.; MIKHAYLOV, N.V., doktor tekhn.nauk

Investigating structural and mechanical properties of bitumens
and bitumen mastics flowing through pipes. Stroil. mat. 6 no.6:
33-36 Je '60. (MIRA 13:6)
(Bitumen) (Fluid dynamics)

IVANOV, A. I., MIKHAYLOV, N. V.

Structural and mechanical properties of bitumens obtained from
different oxidation processes. Koll. zhur. 22 no.2:176-185 Mr-Apr
'60. (MIRA 13:8)

1. Nauchno-issledovatel'skiy institut po stroitel'stvu, Moskva.
(Bitumen)

PHASE I BOOK EXPLOITATION

80V/5701

Mikhaylov, Nikolay Vasil'yevich, Doctor of Technical Sciences, Professor

Osnovnyye printsipy novoy tekhnologii betona i zhelezobetona (Basic Principles of the New Concrete and Ferroconcrete Technology) Moscow, Gosstroyizdat, 1961. 51 p. Errata slip inserted. 5,000 copies printed.

Ed. of Publishing House: T. M. Fedorova; Tech. Ed.: L. M. Osenko.

PURPOSE: This booklet is intended for scientific, engineering, and technical personnel in the construction industry.

COVERAGE: The booklet discusses the first stage in the development of a "new" and "revolutionary" technology, the main purpose of which is to guide, scientifically, the processes taking place in concretes and ferroconcretes in order to raise their quality to the maximum. This new technology is said to contribute to increased productive capacity in plants manufacturing pre-fabricated ferroconcrete parts, and may be used in related industries as well.

Card 1/3

Basic Principles of the New Concrete (Cont.)

SOV/5701

The basic physicochemical theory of concrete and the principles of the new technology are outlined. New vibrating mills, cement-sand and cement mixers, as well as new equipment for forming products made of cement and ferrocement are described. Data on properties of sand concrete produced by the new technological processes are given. Information on the technical and economic effectiveness of the new technology is also included. No personalities are mentioned. There are no references.

TABLE OF CONTENTS:

Foreword by Academician P. A. Rebinder	3
Foreword by Member of ASIA SSSR (Academy of Construction and Architecture USSR) B. G. Skramtayev	5
Introduction	7
Physicochemical Mechanics, a New Branch of Science	10
Physicochemical Theory of Concrete	11
The New Technology of Concrete and Ferroconcrete	16

Card 2/3

S/001/62/000/003/055/090
B149/B102

AUTHORS: Mikhaylov, N. V., Ur'yev, N. B.

TITLE: The problem of adhesion of "new" concrete to "old", and of cementing concretes together in hydrotechnical construction

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 3, 1962, 392, abstract 3K355 (Gidrotekhn. str-vo, no. 9, 1961, 33 - 36)

ABSTRACT: The basic cause of poor adhesion of new to old concrete is the inadequate amount of cement "glue" at their interface. There is an optimum content of water in new concrete which gives the strongest seam without any additional aids. Strong seams are produced by covering the moistened surface of the old concrete with a colloidal cement glue, prepared from finely ground (specific area 5000 - 7000 cm²/g) Portland cement and activated by vibration. [Abstracter's note: Complete translation.]

Card 1/1

MIKHAYLOV, N.V., brigadir

Effect of the organization of work on shortening building
time. Trudy MIEI no.15: 259-264 '61. (MIRA 14:12)

1. Kompleksnaya khozraschetnaya brigada upravleniya nachal'nika
rabot No.111 Glavrostovstroya.
(Rostov-on-don - Construction industry)

MIKHAYLOV, N.V., prof., doktor tekhn.nauk; UR'YEV, N.B., inzh.

Gluing concrete and reinforced concrete articles with cement glue.

Avt. dor. 24 no.3:19-22 Mr '61.

(MIRA 14:5)

(Glue)

(Cement)

VEDENEYEV, Boris Vasil'yevich, kand. tekhn. nauk; MIKHAYLOV, Nikolay
Vasil'yevich, doktor tekhn. nauk.

[Pipe conveying of hot bitumen] Truboprovodnyy transport gor-
yachego bituma. Moskva, Gosstroizdat, 1962. 218 p.
(MIRA 15:7)

(Bitumen)

MIKHAYLOV, N. V., prof.; BYKOV, V. M., inzh.; SOKOLOV, A. N., inzh.

Ties made with sand concrete. Put' 1 put. khoz. 6 no.10:14-16
'62. (MIRA 15:10)

(Railroads—Ties, Concrete)

GORETSKIY, L.I.; MIKHAYLOV, N.V.; UR'YEV, N.B.; GORSHKOV, D.I.; KOZODAYEV, G.A.;
MISHIN, V.A.

Machines using colloidal cement glue for repairing airfield and road
coverings. Mekh. stroi. 20 no.11:22-24 N '63. (MIRA 17:1)

USHAKOVA, I.N.; KALMYKOVA, Ye.Ye.; MIKHAYLOV, N.V.

Effect of the vacuum-processing of cement paste during vibrating mixing on the rheological and structure-mechanical properties of cement rock in the process of its hardening. Koll. zhur. 25 no.4:478-486 J1-Ag '63. (MIRA 17:2)

1. Institut fizicheskoy khimii AN SSSR, Moskva.

USHAKOVA, I.N.; KALMYKOVA, Ye.Ye.; MIKHAYLOV, M.V.

Effect of the vacuum-processing of cement water pastes
during vibrational mixing on the properties of cement stone.

Dokl. AN SSSR 150 no.2:361-364, My '63.

(MIRA 16:5)

1. Institut fizicheskoy khimii AN SSSR. Predstavleno akademikom
P.A.Rebinderom.

(Cement)

KALMYKOVA, Ye.Ye.; MIKHAYLOV, N.V.

Rheology of aqueous cement suspensions. Dokl. AN SSSR 152
no.2:389-391 S '63. (MIRA 16:11)

1. Institut fizicheskoy khimii AN SSSR. Predstavleno akademikom
P.A. Rebinderom.

UR'YEV, N.B.; MIKHAYLOV, N.V.

Rheological properties of aqueous cement suspensions when
subjected to vibration. Dokl. AN SSSR 153 no.4:828-831
D '63. (MIRA 17:1)

1. Institut fizicheskoy khimii AN SSSR. Predstavleno aka-
demikom P.A. Rebinderom.

NURODZHEVETS, P.N.; PONDAREVA, L.V.; SHIGORIN, I.N.; MIKHAYLOV, S.V.;
" PAROVA, L.L.

Application of the luminescence method for determining the state of
stabilizing additions in polymers. Vysokom.sped. khim. 2:1411-1414.
Appl. Pol. (MIRA 17:10)

L. S. Zakharenko, formerly Institute of Chemistry L.Ya. Dneprov.

GORSHENINA, G.I.; KUPERMAN, M.Ye.; MIKHAYLOV, N.V.

Electron microscope study of the structure of bituminous
polymeric materials. Koll.zhur. 26 no.2:165-167 Mr-Apr '64.
(MIRA 17:4)

1. Institut fizicheskoy khimii AN SSSR i Nauchno-issledovatel'skiy
institut po udobreniyam i insektofungitsidam imeni Ya.V.Samoylova,
Moskva.

USHAKOVA, I.N.; MIKHAYLOV, N.V.; REBINDER, P.A.

Effect of the water content, microfillers, and surface-active agents on the disperse structure of the framework of sand concrete. Koll. zhur. 26 no.6:713-721 N-D '64 (MIRA 18:1)

1. Institut fizicheskoy khimii AN SSSR, Moskva.

PORTNYAGIN, V.P.; MIKHAYLOV, N.V.

Characteristics of bitumen heating in the AB3 catalyst and the
intensification of the process. Avt. i n. 17 no. 12:11-13 0 164.
(MIRA 18:2)

ACCESSION NR: AP4013338

S/0020/64/154/003/0703/0706

AUTHORS: Chlenov, V.A.; Mikhaylov, N.V.

TITLE: A new principle for production of a "boiling layer"

SOURCE: AN SSSR. Doklady*, v. 154, no. 3, 1964, 703-706

TOPIC TAGS: boiling layer, vibroboiling, mechanical reaction
acceleration, boundary reaction, vibration boiling

ABSTRACT: The physico-chemical reactions between substances develop at their boundary surfaces. Increased surface of contact enhances the reaction rate. The author suggested in 1960 a new method for creation of a "boiling layer" of solid particles, or drops of liquids, etc. This is achieved by mechanical vibrations of the support on which the particles rest. In the present work, the critical parameters of the vibrations are experimentally determined which are necessary for creating the "vibroboiling state". The amplitudes of vibrations are observed with a microscope, and

1/2

ACCESSION NR: AP4013338

Recorded oscillographically. Orig. art. has: 4 figures.

ASSOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR
(Institute for Physical Chemistry, AN SSSR)

SUBMITTED: 10Jul63

DATE ACQ: 26Feb64

ENCL: 00

OBJ CODE: CH

NO REF SOV: 002

OTHER: 001

GORSHENINA, G.I.; MIKHAYLOV, N.V.

Complete rheological characteristics of bitumens and
bitumen-polymeric materials. Dokl. AN SSSR 154 no.4:929-932
F '64. (MIRA 17:3)

1. Institut fizicheskoy khimii AN SSSR. Predstavleno akademi-
kom P.A. Rebinderom.

GORSHENINA, G.I.; MIKHAYLOV, N.V.

Cavitation method for obtaining maximum homogeneity in bitumen-
base dispersion mixtures. Dokl. AN SSSR 154 no.5:1179-1182
F'64. (MIRA 17:2)

1. Institut fizicheskoy khimii AN SSSR. Predstavleno akademikom
P.A. Rebinderom.

MIKHAYLOV, Nik. Vas.; MIKHAYLOV, N.V.

Lowering the viscosity of dispersed systems by vibration. Dokl.
AN SSSR 155 no. 4:920-923 Ap '64. (MIRA 17:5)

1. Institut fizicheskoy khimii AN SSSR. Predstavleno akademikom
A.N.Frumkinym.

58119-66 ENT(m)/EWP(j)/T RM
C NR, AP6012414 (A) SOURCE CODE: UR/0183/65/000/006/0003/0009

THOR: Mikhaylov, N. V.; Mogilevskiy, Ye. M.; Nikolayeva, N. S.; Surov,
A.; Mayboroda, V. I.; Lin'kova, Z. K.; Bochkina, V. S.

g: VNIIV

FILE: Properties and methods of making rayon filaments

URCE: Khimicheskiye volokna, no. 6, 1965, 3-9

PIC TAGS: synthetic fiber, organic synthetic process, textile, textile
engineering, textile industry machinery

STRACT: Various patented processes for obtaining viscose fibers similar
cotton were evaluated. Basic technological parameters were worked out
r a 1-bath and 2-bath method of forming and drawing xanthogenate
laments. Requirements for construction of spinning equipment were
etermined. Viscose filaments whose physical-mechanical properties
mpared to those of foreign rayon filaments of average strength were
tained on pilot equipment. Orig. art. has: 5 tables.

B CODE: 11, 13/ SUBM DATE: 02Mar65/ ORIG REF: 003/ OTH REF: 022

ard 1/1 UDC: 677.463

POPTNYACIN, V.D.; MIKHAYLOV, N.V.

Effect of vibration on the rheological properties of bitumens.
Dokl. AN SSSR 161 no.4:893-895 Ap '65. (MIRA 18:6)

Institut fizicheskoy khimii AN SSSR. Submitted September 23,
1964.

596-65 EWT(m)/EWP(j)/T Pc-4 RM
SESSION NR: AP5017462 UR/0020/65/162/005/1119/1121

AUTHOR: Yasovskiy, S. R.; Ur'yev, N. B.; Mikhaylov, N. V.

LE: Dispersion (fluffing) of asbestos fiber subjected to vibrations

ORCE: AN SSSR. Doklady, v. 162, no. 5, 1965, 1119-1121

IC TAGS: asbestos, vibrational dispersion, fluffing, surfactant

TRACT: The dispersion of asbestos under the influence of vibration and of an adsorbed surfactant (calcium hydroxide solution) was studied on an M-10 vibro mill at a frequency of 50 cps and a vibration amplitude of 1.7 mm. The results were evaluated by three methods: (1) Determination of the specific surface of the undispersed and dispersed asbestos by means of air permeability; (2) A microscopic method for determining the content of fiber fractions of different thicknesses; (3) An indirect method of estimating the influence of the dispersity of asbestos on the structuration in suspensions of the cement - asbestos - water system. It is concluded that the use of effective vibration combined with additions of a surfactant $[Ca(OH)_2]$ considerably accelerates the process of disaggregation (dispersion) of structurized fibrous systems such as asbestos. The quality of the

59596-65
SESSION NR: AP5017462

uffing produced by applying a vibrational field is higher than that produced by
y other existing dispersion method. Orig. art. has: 3 figures and 1 table.

SOCIATION: Institut fizicheskoy khimii Akademii nauk SSSR (Institute of Physi-
l Chemistry, Academy of Sciences, SSSR)

EMITTED: 19Nov64

ENCL: 00

SUB CODE: MT

REF SOV: 011

OTHER: 000

2/2

GORSHENINA, G.I.; MIKHAYLOV, N.V.

Studying the flow properties of bituminous insulating materials.
Nefteper. i neftekhim. no.6:24-26. '65. (MIRA 18:7)

1. Institut fizicheskoy khimii AN SSSR.

MIKHAYLOV, N.V.

Investigating activities consisting of...
and rubber...
1. 1912-1913

32680-66 EWT(m)/EWP(j)/T RM

C NR: AP6013745

(A)

SOURCE CODE: UR/0063/65/010/006/0712/0714

AUTHORS: Strashnova, T. F.; Mikhaylov, N. V.; Mayboroda, V. I.

28
P

INSTITUTION: All-Union Scientific Research Institute for Synthetic Fibers and Experimental
Textile Engineering (Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna
i khimicheskogo razlucheniya)

SUBJECT: Preparation of cross-linked capron fiber

ABSTRACT: Vsesoyuznoye khimicheskoye obshchestvo. Zhurnal, v. 10, no. 6, 1965, 712-714

KEYWORDS: polyester plastic, synthetic fiber, polymer cross linking

ABSTRACT: Cross-linking in capron fibers introduced by means of reaction with thionyl chloride has been investigated. The morphological properties of the produced fibers were studied by means of light microscopy according to the method described by Bobeth (Textil. ind., 62, No. 21, 905, 1960). The effects of the thionyl chloride concentration in the solution and time and temperature of the treatment upon the degree of cross-linking were investigated. Increase of all of these variables results in a considerable increase of the sulfur content in the fiber and a decrease of its solubility in monohydrate and cresol. It also was shown that the cross linkages are not uniformly distributed throughout the fiber but are localized close to the fiber surface. Orig. art. has: 2 figures and 1 table.

CLASS CODE: 07/

SUBM DATE: 27Mar65/

ORIG REF: 002/

OTH REF: 004

and 1/1 B LG

UDC: 677.46/49

CHLENOV, V.A.; MIKHAYLOV, N.V.

Vibrofluidized bed. Zhur. fiz. khim. no.2:473-475 F 165.

(MIRA 18:4)

1. Institut fizicheskoy khimii AN SSSR.

SIL'CHENKO, L.A.; MIKHAYLOV, N.V.; REBINDER, P.A., akademik

Selecting the optimum time of concrete curing previous to hydrothermal treatment. Dokl. AN SSSR 162 no.6:1342-1345 Je '65. (MIRA 18:7)

1. Institut fizicheskoy khimii AN SSSR.

32966-66 EWT(m)/EWP(j)/T RM
 CC NR: AP6017601 (A)

SOURCE CODE: UR/0183/66/000/001/0022/0026

AUTHOR: Strashnova, T. T.; Mikhaylov, N. V.; Mayboroda, V. I.

: VNIIV

LE: Using sulfur chloride solutions for cross-linking capron fibers¹⁵

RECE: Khimicheskiye volokna, no. 1, 1966, 22-26

IC TAGS: sulfur compound, chloride, polymer cross linking, synthetic fiber, nylon, pyridine, solubility, polyamide, mechanical heat treatment

TRACT: The authors study the interaction between polyamide fiber and sulfur chloride. The fibers were treated in xylol solutions of sulfur chloride in the presence of pyridine (for binding the precipitated hydrochloric acid) at a temperature constant within $\pm 2^{\circ}\text{C}$. The fibers were treated in the free state and under tension to prevent shrinkage. Curves are given showing the effect of the type of solvent, temperature, concentration of hydrochloric acid and length of treatment on the amount of bound sulfur in the fiber. It is shown that a chemically twisted fiber may be produced by treating polyamide fiber in sulfur chloride solutions. Data are tabulated on the solubility of the cross-linked polyamide fiber in cresol and monohydrate as a function of the amount of bound sulfur fiber. It is shown that the solubility of the fiber increases in general as the bound sulfur concentration increases. The experimental

ord 1/2

UDC: 677.494.675

32966-66

CC NR: AP6017601

show that the bonds are broken in all cases where capron fiber with sulfide cross linking is subjected to heat treatment. There is also a reduction in the quantity of sulfur in the fiber. A reduction in fiber strength with increased temperature and bound sulfur concentration is apparently the combined result of destruction of the side bound by the HCl precipitated during the reaction and disorientation processes. fig. art. has: 6 figures, 4 tables.

B CODE: 11/ SUBM DATE: 11Mar65/ ORIG REF: 005/ OTH REF: 008

Card 2/2

L 43897-66 EWT(m)/EWP(j)/T IJP(c) WW/RM

ACC NR: AP6015659 SOURCE CODE: UR/0413/66/000/009/0073/0073

INVENTOR: Tokareva, L. G.; Zhandareva, Z. A.; Mikhaylov, N. V.; Kirpichnikov,

. A.

RG: none

TITLE: Method of making vinyl polymers heat resistant. Class 39, No. 181278
announced by the All-Union Scientific Research Institute of Synthetic Fibers (Vse-
oyuznyy nauchno-issledovatel' skiy institut iskustvennogo volokna)

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 9, 1966, 73

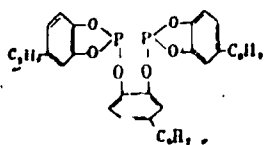
TOPIC TAGS: ^{VINYL/}polymer, polyvinyl alcohol, heat resistance, heat resistant/polymer

ABSTRACT: An Author Certificate has been issued for a method of making vinyl
polymers, such as polyvinyl alcohol and its byproducts, heat resistant by use of
phosphorus containing compounds. To increase the number of heat stabilizers and to
improve the properties of polyvinyl alcohol and its byproducts, water-insoluble
phosphites of the following formula are used as phosphorus-containing compounds:

Card 1/2

UDC: 678.744.72:678.048

L 43897-66
ACC NR: AP6015659



Translation]

[NT]

SUB CODE: 11/ SUBM DATE: 30Jun64/

Card 2/2 *LGM*

447-67 ENI(m)/ENP(K)/ENP(t)/ETI
R: AP6029690

SOURCE CODE: UR/0369/66/002/004/0482/0484

R: Polyakov, N. V.; Mikhaylov, N. V.

Institute of Physical Chemistry, AN SSSR, Moscow (Institut fizicheskoy khimii
SR)

: Studies of deformation of metals under vibration

E: Fiziko-khimicheskaya mekhanika materialov, v. 2, no. 4, 1966, 482-484

TAGS: metal deformation, vibration effect, vibration transmission, metal press

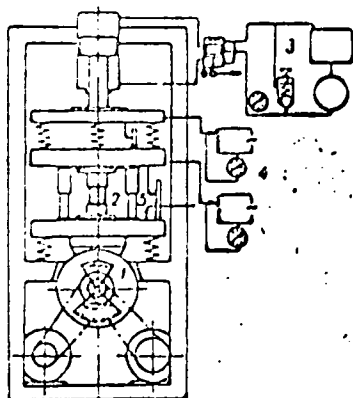
ACT: A press for deformation of metals in a vibrational field was developed at
Institute for Physical Chemistry of AN SSSR. The equipment is described and some
research results are reported. The vibropress (Figure 1) submits metals simultaneous-
compression under static pressure and to vibration directed parallel to the
of static force. Frequencies are controlled at 5--40 cycles/sec and 0.6 mm amp-
e or at 15--100 cycles/sec and 0.15 mm amplitude. Lead specimen at 20 C and 20
plied pressure showed at various amplitudes and frequencies the same type of
ic deformation, but the magnitude of deformation increased with the strength of
field. Deformation observed at 80--90 cycles/sec was equal to deformation at 200C
out vibration. Resistance of the sample to deformation decreased markedly, where-
e transmission of vibrations to structural foundations was lower than in other
ation equipment. The method can be applied in rolling, pressing, and extruding

/2

1447-67
NR, AP6029690

for hot stamping, deep drawing, and other operations. Orig. art. has: 3 figures.

Figure 1
Diagram of the vibropress assembly.



- 1, two-frequency vibrator;
- 2, die;
- 3, pump;
- 4, potentiometric transmitters of deformation and pressure;
- 5, piezoelectric transmitter of acceleration and frequency

CODE: 11 / SUBM DATE: 23Aug65/ ORIG REF: 007

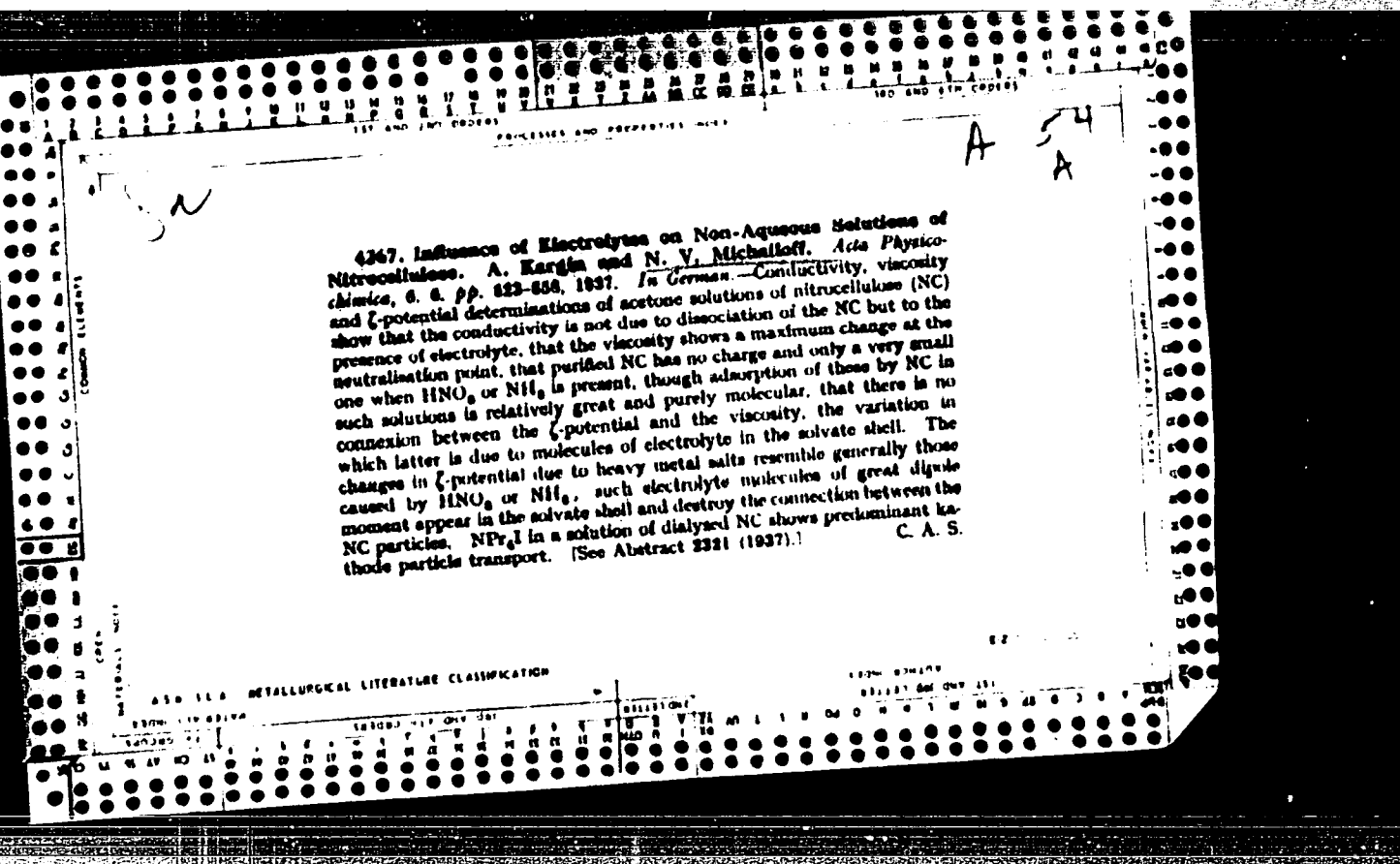
2/2 *lrr*

TRINOV, V.A.; MIKHAYLOV, N.V.

Drying sand by the conductive method in a vibratory fluidized bed.
Stroi. mat. 10 no.11:11-13, 1964. 3 refs. (MIRA 18:1)

CHLENOV, V.A.; MIKHAYLOV, N.V.

Vibratory fluidized bed and some of its properties. Khim. prom.
40 no.12:910-913 D '64. (MCBA 18:2)



1ST AND 2ND CODES										3RD AND 4TH CODES									
PROCESSES AND PROPERTIES INDEX																			
<i>Ca</i> X-ray study of the orientation of artificial fiber I. V. A. Kargin and N. V. Mikhailov. <i>Acta Physicochem. U. R. S. S. 11, 343-60 (1959) (in English)</i>.—Exptl. data on the strength and percentage elongation of wet and dry samples of cuprammonium rayon and viscose rayon variously prepd. and treated are given. In contrast to the theory of Mark and Meyer (cf. C. A. 23, 1263), K. and M. hold, on the basis of these data, that the true equilibrium state is one in which the chain aggregates are in a more or less disordered arrangement, and that the elongation-approach to a true crystal is an unstable state. Highly swollen gelatin contg. only 8% α-cellulose shows 2 to 3-fold elongation and, like rubber, almost instantaneous shrinking. P. H. Rathmann <i>25</i> <i>1. Sipov Inst. Physical Chem., 126 High..</i> <i>Molecular Compounds</i> <i>X-Ray Lab. Sci. Res. Inst. Artificial</i> <i>Fiber, Moscow</i>																			
ASB-51A METALLURGICAL LITERATURE CLASSIFICATION																			

X-ray study of the orientation of artificial fibres. I. V. A. Kargin and N. V. Mikhailov. II. N. V. Mikhailov, V. A. Kargin, and V. M. Bushman (J. Phys. Chem. Russ., 1960, 14, 100-104, 200-207).—I. From X-ray patterns of rayon fibres the quant. angle distribution of cellulose chains is calc. It is a pure random distribution only for viscose rayon kept for 2 hr. in boiling H₂O; all other samples show some preferred orientation. The degree of orientation is raised by stretching wet fibre and drying it under load; this treatment increases also the tensile strength of fibres both wet and dry, and reduces the total elongation of dry fibres. The orientation of stretched fibres is destroyed by boiling H₂O; the fibres obtained have a high tensile strength when dry, and a very high total elongation both when wet and when dry. The disappearance of orientation in hot H₂O shows that the crystal-like state is not that of max. stability.

II. When a fibre of cellulose xanthate (I) is transformed into hydracellulose (II), and the resulting fibre stretched, it shows an orientation. When the stretched fibre is kept for 2 hr. in boiling H₂O, however, this orientation disappears and the X-ray pattern becomes identical with that before stretching. When a fibre of (I) is first stretched and then transformed into (II), its orientation is not affected by boiling H₂O. The orientation obtained during the formation of (II) is stable, probably due to links between cellulose chains, whereas an orientation produced by later deformations is "elastic."

J. J. B.

ASB SLA METALLURGICAL LITERATURE CLASSIFICATION

CA

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X-ray diffraction investigations of the orientation of artificial fibers. II. Stability of oriented fibers of cellulose hydrate. N. V. Mikhaleva, Y. A. Kargin and V. M. Bukhman. *J. Phys. Chem.* (U. S. S. R.) 14, 215-7 (1940); cf. *C. A.* 34, 2007. — Fibers of viscose rayon spun under high tension and of cuprammonium rayon were studied. The results were entirely different from the previously reported ones in which weakly oriented viscose was studied. These fibers were all highly oriented; upon boiling in H_2O their orientation was either entirely un-

affected or decreased but slightly, even for prolonged (11 hr.) treatment. The only apparent difference between these and the previously reported fibers lies in the fact that one set of fibers is oriented in the process of its formation, whereas the other (weakly oriented viscose) is oriented by tension after the fiber was formed. Thus, apparently the fiber tends to regain its initial state, this tendency being facilitated by a process such as prolonged boiling with H_2O . A brief theoretical discussion is presented in which as yet unknown types of bonding are postulated which "fix" orientation in a fiber at the moment of its formation; it is believed that these bonds are some type of an ether linkage, but owing to lack of direct evidence no proof can be offered. Orientation by stretching of a formed fiber is considered to be a form of elastic elongation producing only temporary changes of mechanical properties of the fiber. O. M. Kowaloff

ASB 31A METALLURGICAL LITERATURE CLASSIFICATION

KARPOV, N. V., head of Physicochemical Laboratory of Scientific Research Institute
Artificial Fiber, Moscow (MIV)

"The Structure of Hydrate-Cellulose Fibers and the Mechanism of Their Strengthen-
ing," Sub. 20 Jan 47, Sci Res Order of the Labor Red Banner Physicochemical Institute
Ya. Karpov.

Dissertations presented for degrees in science and engineering in Moscow in 1947.

Sum.No.457, 1st Apr 55

MIKHAYLOV, N.V.

Mikhaylov, N.V. and Kargin, V.A. "The mechanics of hardening hydrate-cellulose fibers," in symposium: Issledovaniya v oblasti tsellyulozy i yeye sputnikov, Moscow-Leningrad, 1948, p. 138-57 - Bibliog: p. 157

SO: U-2888, Letopis Zhurnal'nykh Statey, No. 1, 1949

IN Y-LOW, 14-V

Structure and thermodynamic stability of highly oriented cellulose hydrate fibers. N. V. Mikhailov, V. A. Kargin, and V. I. Bilchik. *Issledovanie v Oblas'ti Vysokomolekul. Soedinenii, Doklady 6-oi Konf. Vysokomolekul. Soedinenii, Akad. Nauk. S.S.S.R.* 1949, 281-8. A structural study, with application of x-rays, was made on cellulose hydrate fibers in the elongation interval of 0-200%. In comparison with natural cellulose, the hydrated form was more oriented in spite of a decrease of 30% in tensile strength. A hydrated fiber stretched by 180% in NaOH solution showed no new interference spots on x-ray examn. Hence the sharp, almost pointlike interference spots which appeared in the diagrams of highly oriented cellulose hydrate specimens were not the result of a phase transformation into a cryst. state but were simply the result of a structure which was nearly stable and had a long period of relaxation. Treatment of the hydrate fiber in glycerol 2 hrs. at 250° gave a product whose x-ray diagram resembled that of natural cellulose with a high degree of orientation; treatment of this with 16% NaOH to revert the substance to the cellulose hydrate form reverted completely to the original pattern. Thus this cycle could be repeated at will. The results support the contention that natural cellulose differs from the hydrate in the configuration and disposition of chain linkages, each of which has its own equil. form of the chain. The effect is based on the fact that chain expansion or contraction can occur more readily than chain displacement or transformation. G. M. K.

AYLOV, N.V.

Relaxation phenomena in the formation of cellulose hy-
drate fibers. V. A. Kargin, N. V. Mikhalev, and V. I.
 Blinck. *Izvestiya v Oblas'ti Vysokomolekul. Soedinenii.*
Doklady 6-oi Konf. Vysokomolekul. Soedineniyam, Akad.
Nauk. S.S.S.R. 1949, 315-23. The mech-strength dia-
 grams were obtained for viscose fibers with detms. of defor-
 mation under known loads in time. Relaxation phenomena
 are regarded as the results of stress distribution through the
 mol. chains with a certain degree of resultant deformation
 and increase of rigidity. Thus polymers with rigid chains
 initially exhibit such a great rise of internal rigidity under
 stress that deformation may cease, similar to what occurs in
 the transition to the vitreous state. Mech. vitrification is
 thus produced in the viscose fiber under a load of sufficient
 magnitude. The kinetics of the vitrification is simply re-
 lated to relaxation changes: there is a linear relation of re-
 laxation ability to the logarithm of the time of vitrification.
 The vitrified fibers can be relaxed after heating in an aq-
 uous medium; this leads to decline in tensile strength and an in-
 crease of limiting elongation. G. M. Kozlovskii